In the Claims

1. (Canceled).

2. (Currently amended) A method operable on a clocking system that includes a plurality of tiers of clock dividers that successively divide a reference frequency derived from a master clock frequency for producing a plurality of desired frequencies, comprising:

(A) determining a least common multiple (LCM) of the desired frequencies and the master clock frequency;

(B) selecting divider values for one of the plurality of tiers of dividers subject to a requirement that input frequencies to that tier of dividers fall within a predetermined range and that they add a minimum number of few new factors to the LCM;

(C) multiplying the LCM by any new factors needed to realize the dividers of the selected tier of dividers to yield a LumpLCM;

(D) repeating steps B and C for all except the last tier of dividers, including updating the LumpLCM for each repetition to include any new factors needed to realize the dividers for the respective tier; ~~and~~

(E) computing values for the last tier of dividers responsive to LumpLCM and the reference frequency; and

(F) configuring the clocking system responsive to at least one of the divider values.

3. (Previously presented) A method as recited in claim 2, wherein the reference frequency is defined as a product of a master clock frequency and a K multiplier, and wherein the K multiplier is variable for varying the reference frequency.

4. (Original) A method as recited in claim 3, further comprising:

determining an integer p such that p * LumpLCM falls within an allowable range of the reference frequency; and

computing the reference frequency as the product p * LumpLCM.

5. (Original) A method as recited in claim 4, further comprising:

computing the K multiplier as the reference frequency divided by the master clock frequency.

6. (Original) A method as recited in claim 2, wherein the reference frequency is defined as a product of a master clock frequency and a fixed K multiplier.

7. (Original) A method as recited in claim 6, further comprising:

determining a least common multiple (BigLCM) of the desired frequencies and the reference frequency,

wherein the step (B) of selecting divider values for one of the plurality of tiers of dividers is subject to a requirement that input frequencies add a minimum number of few new factors to BigLCM.

8. (Original) A method as recited in claim 7, further comprising:

determining a real number n such that n * LumpLCM equals the reference frequency; rounding n to the nearest integer to yield n_r; and

modifying the desired frequencies by a factor n_r/n to account for rounding errors introduced in the rounding step.

9. (Amended) A method as recited in claim 2, wherein the clocking system consists of two tiers of dividers.

10. (Currently amended) A method operable on a clocking system that includes a plurality of tiers of clock dividers that successively divide a reference frequency, which is variable over an allowable range, for producing a plurality of desired frequencies, the reference frequency being defined as a product of a master clock frequency and a variable multiplier K, the method comprising:

(A) determining a least common multiple (LCM) of the desired frequencies and the master clock frequency;

(B) selecting divider values for one of the plurality of tiers of dividers subject to a requirement that input frequencies to that tier of dividers fall within a predetermined range and that they add a minimum number of few new factors to the LCM;

(C) multiplying the LCM by any new factors needed to realize the dividers of the selected tier of dividers to yield a new LCM as LumpLCM;

(D) determining an integer p such that p * LumpLCM falls within an allowable range of the reference frequency; ~~and~~

(E) computing the reference frequency as the product p * LumpLCM; and

(F) inserting test program code into a test program for automatic test equipment, responsive to at least one of the divider values.

11. (Original) A method as recited in claim 10, further comprising:

repeating steps B and C for all except the last tier of dividers, including updating LumpLCM for each repetition to include any new factors needed to realize the dividers for the respective tier.

12. (Original) A method as recited in claim 10, further comprising:

computing values for the last tier of dividers responsive to LumpLCM and the reference frequency.

13. (Original) A method as recited in claim 12, further comprising:

computing the K multiplier as the reference frequency divided by the master clock frequency.

14. (Original) A method as recited in claim 13, wherein the reference frequency is defined as a product of a master clock frequency and a fixed K multiplier.

15. (Currently amended) A method operable on a clocking system that includes a plurality of tiers of clock dividers that successively divide a fixed reference frequency for

producing a plurality of desired frequencies, the reference frequency being defined as a product of a master clock and a multiplier K, the method comprising:

(A) determining a least common multiple (LCM) of the desired frequencies and the master clock frequency;

(B) determining a least common multiple (BigLCM) of the desired frequencies and the fixed reference frequency;

(C) selecting divider values for one of the plurality of tiers of dividers subject to a requirement that input frequencies to that tier fall within a predetermined range and that they add a minimum number of few new factors to BigLCM;

(D) multiplying the LCM by any new factors needed to realize the dividers of the selected tier of dividers to yield a LumpLCM;

(E) determining a real number n such that n * LumpLCM equals the reference frequency;

(F) rounding n to the nearest integer to yield n_r; ~~and~~

(G) modifying the desired frequencies by a factor n_r/n to account for rounding errors introduced in step F; and

(H) inserting test program code into a test program for automatic test equipment, responsive to at least one of the divider values.

16. (Original) A method as recited in claim 15, wherein the number of tiers of dividers is two.

17. (Original) A method as recited in claim 15, further comprising, prior to step A, attributing at least two of the desired frequencies to a coherency group, and performing steps A-G using only the desired frequencies attributed to the coherency group.

18. (Original) A method as recited in claim 17, further comprising performing steps A-G independently for different coherency groups.

19. (Original) A method as recited in claim 18, wherein coherency groups are user-assignable.

20. (Original) A method as recited in claim 15, wherein the tier of dividers selected in step C is the tier of dividers whose output produces the desired frequencies.